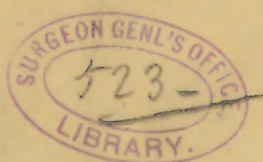


PYLE (J.S.)

Emptying the uterine cavity  
by artificial dilatation x x x x

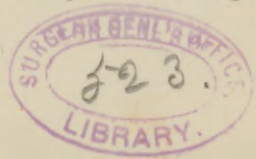




## EMPTYING THE UTERINE CAVITY BY ARTIFICIAL DILATATION.—A NEW BAG FOR ITS ACCOMPLISHMENT.

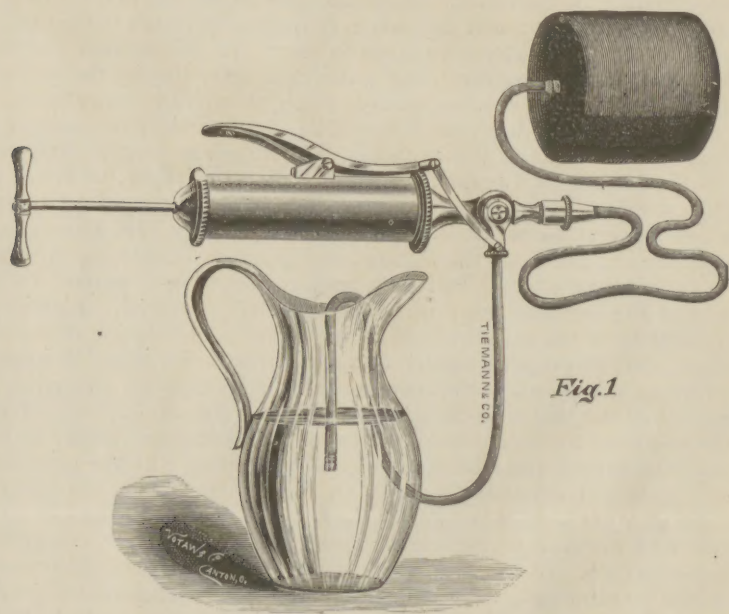
By J. S. PYLE, M.D., Canton, Ohio.

Not infrequently the gynæcologist is confronted with the subject of inducing premature labor, or emptying the uterine cavity for various causes. The obstetrician meets with many cases where artificial dilatation of the cervix would be preferable to hours of suffering, and the first thing to engage our attention under such circumstances is the means at our command. We next study the requirements and nature's method of performing the work, and ask ourselves if any known device will secure dilatation as effectually and with as little danger to both mother and child? Such a contrivance would certainly be desirable, and we are safe in saying that nothing, in general use up to the present day, has ever approached such perfection. It would be presumptuous for any person to assert that this would be impossible, as nature's methods are being paralleled every day by the inventive genius of man. In this instance we are greatly assisted by seeing the operation performed almost daily, and it would be strange indeed if some one did not undertake to imitate the process. An attempt was made some years ago by Dr. Barnes, of London, England. His contrivance, however, was far from fulfilling the requirements; and, inefficient as it proved to be, it came into general use for the want of something better. Dr. Barnes made a mistake in the choice of the material out of which his dilating apparatus was to be constructed, and had he looked to the "bag-of-waters" for the solution of the problem this error would not have occurred. Elasticity is not a property of the membrane that enters into the formation of the bag-of-waters. If this property existed to a marked degree it would be impossible to effect dilatation, as the membrane would simply be obtruded, the dimensions of the amniotic cavity increased, and the whole force of contractile energy of the uterus would be expended upon an expanded surface, thereby diminishing the dilating force and interfering with the progress of labor. An elastic apparatus, such as Dr. Barnes' bag, is far more harmful in its use as a uterine dilator in the commencement and during labor than it would be if the same property was imparted to the membrane constituting the bag-of-waters. In the latter case no alteration to the normal presentation would be witnessed, while in the former this would be a serious objection. Instead of securing the dilatation, the elastic material out of which the bag is made, when put under the required pressure, bulges out balloon-fashion, displacing the uterine contents and exerting a great tendency in favor of abnormal presentations with a dilating force equal only to the resistance of the elastic rubber. This is far from what is at all desirable, and is, I might add, dangerous. So much for elastic material and Dr. Barnes' bag; and if our allegation be genuine, what can be said in favor of an inelastic, impervious dilating bag, made sufficiently large to secure full dilatation for the passage of the oncoming head? Such an apparatus is represented in Fig. 1, upon which our remarks will now rest.





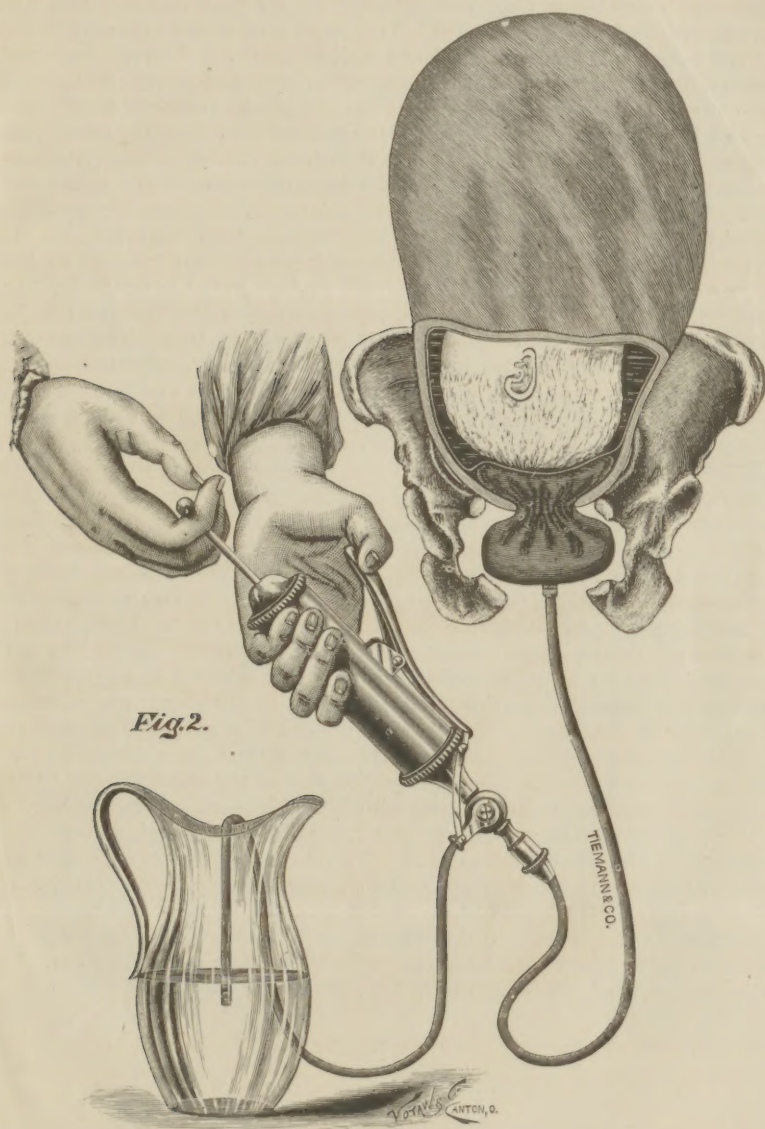
More than a year ago my mind was occupied with the subject of constructing an inelastic bag to be used by the gynæcologist and obstetrician as well. My labors were somewhat impeded by the delay in selecting a material that combined the proper strength and delicacy of texture. This was a question upon which much depended, as I was aware that it would have to be made of material that would occupy the least possible space when inserted. My mind at last rested upon bolting-silk, and forthwith a sample was obtained and forwarded to the Hodgman Rubber Co., of New York, for being treated with rubber to render it impervious to water. This was promptly returned prepared for working up into the article required. The form of the bag was the next thing in question, and here I spent considerable time experimenting. A cylindrical shape was decided upon, and at first it seemed a great advantage to shorten the vertical axis by the use of silk cords, but this soon proved to be unnecessary and the trial bag was made without this addition and with just enough material in the top and bottom to form a right angle with the vertical axis. Of course it would be impossible to retain this flattened surface where there is the slightest elasticity, as there is in all woven fabrics, but the loss in this adds little to the



*Fig. 1*

convexity and does not impair the usefulness of the apparatus. The transverse diameter decided upon was three and a half inches; the vertical, three inches. The seams were united with rubber cement, and to assist in this it was found necessary to have a form that could be taken apart and removed in pieces before the opening in the side of the bag was closed. The latter can be cemented without any support. After all this, which represented a great deal of labor and patience, a trial bag was secured and put to the test, but as its power of resistance fell short of my expectations, I proceeded to find a stronger fabric and one that would answer the same re-

quirements. The raw silk prepared by the Chinese was chosen this time and treated as before. The bag made from this material was put to the test and answered every requirement quite up to my anticipations. I have



had it in use for the past eight months and will be able to give an account of its operation and the cases in which it proves of the most service. The appearance of the bag when it is in position and operation is well shown in Fig. 2.



Its introduction is effected by inverting the distal end, folding the sides in until it occupies the least possible space and carrying the compact mass through the cervix up to the child's head. Here it should be pressed firmly, while the reversible acting pump, shown in the illustration, forces water enough into the bag to expand it. The effect produced is to carry the top end out beneath the membrane and between it and the cervix and in the same manner expand the lower end to which the tube is attached—giving it the shape of an hour-glass. When the bag is full of water it is self-retaining and to secure dilatation all that is necessary is to place the liquid under pressure. This is the dilating force, and with the double-acting pump uterine contractions may be imitated and the dilatation secured in a most natural way. As the bag is being filled and the dilatation progresses, it acquires a cylindrical shape, and when the capacity is completely satisfied, it will be forced out of the cervix by the on-coming head and may be used to dilate the vagina in like manner. In cases of labor where I have used it, I proceeded by dilating the vaginal passage first, so as to allow the greatest freedom to the introduction of the hand in inserting the bag. The operation appears simple enough and is not difficult, but great self-possession and collectedness are required if we hope to become adepts and work with any satisfaction. After the bag is in place, gentleness and a well-regulated pressure with intermissions should be observed. It allows the cervical tissue time to become œdematous and softened, thereby favoring the perfect dilatation of the parts. Care should be exercised not to let too much of the bag enter the uterine cavity, as it would displace the contents and probably encourage abnormal presentations; but this is not likely to happen if it is introduced while the uterine contractions are in progress, as the head will be forced down and prevent the bag from ascending. To the obstetrician the instrument is very desirable in painful labors, cases of uterine inertia, or where the tissues of the parturient canal are highly resistant. By it the hours of labor may be shortened and the patient relieved of a great deal of suffering and muscular exertion. In fact this is so marked that one is tempted to use it in the majority of cases, and I believe to a great advantage. For the induction of premature labor no instrument now in use will take its place. The rapidity of dilatation is under the direction of the operator and may be accelerated or allowed to progress slowly at pleasure. Water is used exclusively as the dilating medium and the parturient canal, as well as the apparatus, is thoroughly disinfected. The use of the bag is extended to all cases where the uterine cavity is to be emptied or explored. Its value is inherent in its inelastic property and delicacy of texture. The former contributes to its resistance and the maintenance of the cylindrical shape, and the latter to its ease of introduction and wider range of application. The instrument is made by Tiemann & Co., of New York.

---

MANUFACTURED AND FOR SALE BY

**GEORGE TIEMANN & CO.**

**Manufacturers of Surgical Instruments,**

**107 PARK ROW, NEW YORK.**



